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RIVER AND HARBOR IMPROVEMENT.

BY THE HON. NEWTON C. BLANCHARD, CHAIRMAN OF THE COMMITTEE ON RIVERS AND HARBORS OF THE HOUSE OF REPRESENTATIVES.

THE government of the United States is pursuing, on a somewhat extended scale, a system of river and harbor improvement. Both the great political parties have recognized the soundness of this policy by substantially indorsing the same in their national platforms. No question is now more fully settled than the right and duty of the government, within proper limitations of economy and public necessity, to facilitate commerce by all appropriate public works.

The value of the great natural highways of our country to the people who now inhabit the United States, and to the generations who will follow in the occupancy of its territory and the control of its destinies, cannot be over-estimated. Nature has done much for North America as regards facilities for transportation. Great oceans on either side and a great gulf on the South offer their pathways to her people; on the North her inland seas, containing one-third of all the fresh water of the world, stand unrivalled among the lakes of all countries; and her numerous rivers lie ready to hand, "awaiting only the application of steam to vessels to render them magnificent highways." To be more specific, we have, approximately, 23,000 miles of dangerous coast line on the two oceans and gulf. We have the two greatest inland waterways on earth—the Great Lakes and the Mississippi River and its tributaries. The rivers of America are the largest on earth. After the Amazon and La Plata, comes the Mississippi, with a discharge per second of 250,000 cubic feet at low water, to over 1,000,000 cubic feet at high water. This mighty river is equal in bulk to all the rivers of Europe combined, exclusive of the Volga. It is larger than the Yang-tse-

Kiang and the Ganges, the greatest rivers of Asia, combined. It has forty-four navigable tributaries, and the aggregate navigable length of these rivers is 16,090 miles—more than four times the length of the ocean line from New York to Liverpool, and more than four times the distance by rail across the continent from New York to San Francisco.

The rivers emptying into the Pacific Ocean give us, in addition, 2,351 miles of navigable streams; those flowing into the Gulf of Mexico, other than the Mississippi, 2,870 miles; and those flowing into the Atlantic Ocean, 2,874, miles—making an enormous total of 24,185 miles of navigable rivers, lacking but little of being long enough to belt the world, and constituting an incomparable system of inland water transportation. These waterways were formed and presented by nature at no cost to the people, but they are just as valuable as if artificially constructed. They belong to the nation, and should, like its custom-houses, post-offices, military roads, and other property, be kept in good condition and repair.

To navigate these waters, we built, according to a competent authority, during the thirty years ending in 1890, 1,747 ships and barks, 575 barges, 12,423 schooners, and 17,359 sloops and other small craft—a total of 32,104 sailing and unrigged craft, representing 5,159,605 tons of tonnage; and during the same time we constructed 10,652 steamers, having a total tonnage of 2,864,066 tons—giving a grand aggregate of 42,756 craft of all kinds, having a tonnage of 8,023,671 tons, and representing an average annual addition of 1,379 vessels of 258,828 tons to our carrying fleet.

The records of the census give the fleet for the census year at 8,917 sailing vessels, 6,067 steam vessels, and 10,561 unrigged craft, making 25,545 vessels of all kinds, of the aggregate value of $215,020,336, to which must be added $25,000,000 for shore property, making a total of $240,020,336—a vast interest earning $145,000,000 for the year, employing wholly or partially during the year 240,288 persons, and paying out in the same time for expenses $115,000,000, of which $40,000,000 (in round numbers) was for wages.

The Census Bureau was able to gather reports on only about 90 per cent. of the traffic fleet, yet the report of operations by these is a remarkable one, the freight moved having been no less than

108,078,320 tons, the number of passengers carried having been 199,079,577, and the aggregate mileage the vessels reporting travelled to accomplish these results having equalled 106,456,164 miles.

The value of the exports and imports of the United States for the census year 1890, carried in American vessels, was $202,451,086, and the value of that carried in foreign vessels was $1,371,116,744, making a total of $1,573,567,830. This vast commerce is benefited directly by the improvement of our harbors, and indirectly by the improvement of our internal waterways. But this was only our foreign commerce across the oceans. Let us glance now at the freight movement on our inland and coastwise waters. This is grouped by a competent authority* as follows :

	Tons.
Freight movement of the Great Lakes, wholly domestic	**53,424,432**
Freight movement on the rivers of the Mississippi Valley, wholly domestic	**29,405,046**
Domestic commerce on the Atlantic coast and Gulf of Mexico	**72,705,973**
Domestic commerce on the Pacific coast	**8,111,278**
Making a total of	**164,646,729**
Add to these figures the of canal traffic,	**20,747,932**
And we have a total freight movement on our inland waters of	**185,394,665**

all of which is benefited directly by the expenditures made in the improvement of our waterways and ocean ports.

From this exhibit of foreign commerce on the ocean, and of domestic commerce on our inland and coastwise waters, it must be admitted that there is ample justification for the liberal policy of river and harbor improvement upon which the government has entered. But this is not all. If there were not a pound of freight carried upon the waterways, the benefits derived from their presence would be incalculable, standing as they do a menace by nature to all artificial competition and free to all who wish to use them for transportation purposes upon equal terms- with minimum opportunities for pooling or discrimination—the great evils to-day in every other means of communication and transportation.

It is true, the railways now carry the largest portion of the freight formerly transported by river or lake, but they are compelled, by river and lake competition, to carry such freight during the season of navigation at very low rates. The waterways are the most powerful possible regulators of rates upon the railways. It is clearly shown by statistics that the lowest freight rates are found upon railroads most subject to water competition, and these rates ascend or decline according as navigation is free or interrupted.

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* **Mr. Thos. J. Vivian, Transportation Statistics, United States Census.**

The saving, therefore, to commerce arising from our waterways and their improvement comes from the resulting low rates of freight, and its money value must be calculated not only from freight moved by water, but also upon freight moved by rail in competition with the water routes. The effect of water transportation, it will thus be seen, is both direct and indirect. It furnishes the shipper with cheap rates, and, also, by its competitive influence, forces the railways to lessen charges. A diminution in freight charges of one mill per ton per mile on the railways of the country effects a saving of nearly a hundred millions annually to shippers in transportation charges.

It must be conceded, then, that upon our inland waterways depends most largely the realization of cheap transportation. Cheap transportation affects the welfare of both the producer and consumer. The competition among commercial cities is so great that a trifling overcharge in rates of transportation may cost the loss of an important market to the producer, and the trade of an important section to the particular market. Unobstructed navigation of the lakes and interior rivers, and deep water ports on the Atlantic, the Gulf and the Pacific coasts, means cheaper food, cheaper clothing, cheaper iron, coal, lumber, and cheaper supplies generally to every inhabitant of the United States.

No class of general legislation has, probably, been subjected to more severe and continued criticism than that enacted for the support and development of our internal and seaboard commerce by the improvement of our rivers and harbors. And yet it is probable that no distribution of public moneys has conferred more common and lasting benefits upon the people and upon the industries of the country at large. Nothing is more necessary to the development of a country and the advancement of its people than cheap, safe, unobstructed, and reliable transportation. Particularly is this true of a country like ours, with widely separated boundaries and diversified natural resources, where manufacturing industries and their sources of supply are often thousands of miles apart, and where centres of population are far removed from the agricultural regions, which supply the necessities of life.

The total amount appropriated for rivers and harbors from the beginning of the government, in 1789, to the present time is, in round numbers, $240,000,000. What a small sum when compared with the amount of the present cash valuation of the railroads constructed in the United States since 1830 (say), $5,000,000,000! It is a remarkable fact that the total amount expended for river and harbor improvement hardly equals what is paid out in one year at the present time for repairs and rolling stock on the railways of the country.

For some years from the beginning of the government, improvement of our waterways was limited to sea-coast harbors and salt-water tidal streams. Later, John C. Calhoun, the leader of the strict constructionists of the Constitution, looked upon the Mississippi River and declared it "an arm of the sea," justifying the improvement of its navigation by the Federal Government on this ground. Inland and westward the advancing tide of population, of trade and commercial industry and activity, pushed its way, rendering the utilization of our other rivers and lakes necessary, and directing attention and care to their navigation. As more rivers and harbors were taken in hand, as more projects of improvement were entered on, a corresponding increase in appropriations for this purpose became necessary. In 1822, the first general appropriation for the improvement of rivers and harbors was made, amounting to $22,700. From time to time, appropriations of this character continued to be made, resulting in the expenditure of $14,700,000 prior to 1860. In the decade between 1860 and 1870, the aggregate appropriations were $12,789,182; between 1870 and 1880, $68,035,656; between 1880 and 1890, inclusive, $108,613,066; and since 1890, a little over $35,000,000: making a total of $240,000,000 in more than a century for purposes of great public improvement.

Contrast this sum with expenditures for like purposes by other maritime nations. Our neighbor, Canada, with about one-twelfth of our population, and with resources and wealth in no wise comparable to ours, has expended on her transportation routes (lakes, rivers, canals, and railways) more than $300,000,000, including nearly 1,300 miles of railway constructed and equipped by the government.

England has only 1,300 miles of coast line—not much more than one-twentieth of what we have. Yet she expends $20,000,000 annually upon the same; $30,000,000 has been expended on the Clyde, which is but a rivulet compared with the Mississippi ; and $82,000,000, all told, upon the Mersey, which is but a spring branch compared with the mighty "Father of Waters." Upon some of her harbors Great Britain has expended large sums—over $5,000,000 at Portland, over $6,500,000 at Holyhead, and over $7,000,000 at Plymouth. The figures may be much larger than these. I have not before me the expenditures for the more recent years. The great ship canal connecting Manchester with the sea at Liverpool, a distance of about 40 miles, was formally opened, amid great rejoicings, on the first of the present year, having been completed at a cost approximating $80,000,000.

France, with about three-fifths of our population and one-seventeenth of our territorial area, has expended since 1814 upon her harbors and waterways more than $650,000,000, in addition to $700,000,000 upon her railways. The aggregate length of her navigable rivers and canals is about 7,000 miles—not much exceeding the navigable length of the natural waterways in the single State of Louisiana.

Germany, in 1887, authorized the construction of more than 1,000 miles of new canal routes in addition to the 1,289 miles then in operation and her 4,925 miles of available navigable rivers.

Our method of making appropriations for river and harbor work has been faulty in the extreme. We have pursued a less wise course than have our European brothers ; and a comparison of their methods with our own teaches a wholesome lesson and illustrates the only extravagant feature incident to the expenditure of our river and harbor appropriations. In Europe, when the improvement of a harbor or river is determined on, an estimate of the cost is made and a plan adopted. Then all the money necessary for the completion of the project is appropriated at once and made available for the regular, systematic, and continuous prosecution of the work.

With us, an order of survey of the stream or harbor proposed to be improved is made by Congress and this order is executed by the War Department, through the Engineer Corps. Inquiry is then made relative to the present and prospective commerce to be benefited by the contemplated improvement, with the view of determining what public necessity exists for the proposed expenditure and an opinion is required of the officer making the survey and of the

War Department, through the Chief of Engineers, as to whether the locality is worthy of improvement or not. If worthy, a plan of improvement is formulated and estimates of the cost figured. All this is submitted in a detailed report to Congress. So far, so good. Then, if it be the judgment of Congress that the project is worthy and the improvement be entered on, the plan is formally adopted, and a small appropriation, frequently not more than 10, 15, or 30 per cent. of the estimate, is made *to begin* the work.

There is always uncertainty when the next appropriation to continue the work will be made, and how much it will be. Thus, the officer charged with the work of construction is compelled to limit his contracts to the amount actually appropriated. This is soon exhausted, and work is stopped until the period comes around for the passage of another river and harbor bill. For the last ten or twelve years such bills have been biennial, coming only once in two years. At the first, or long, session of each Congress it is possible to pass such measures; at the short session they are "filibustered" to death. Stoppage of the work for the want of funds, as above indicated, not only postpones the period when results will be realized by the completion of the work, but is wasteful in the last degree by deterioration of the work already done by being left in an incomplete condition, and by the plant and working force engaged upon it becoming scattered and removed.

Sometimes the results of one year's work are destroyed or become valueless from one cause or another before the next appropriation can be had. Sometimes the engineer, as a matter of economy or from force of circumstances, withholds the expenditure until more money is appropriated and becomes available for the work.

This slow, sporadic, intermittent, uncertain method of providing the means to carry on public works has operated greatly to our disadvantage. In many instances the final cost of securing desired results has been greatly increased over what would have been required had the estimated cost been made available at once. The fault of our system lies in not appropriating the amount needed to complete a public work when it is ordered to be commenced, or in not authorizing the making of contracts to complete it.

The officers of the Engineer Corps protested from the beginning against the policy of partial appropriations, and the civil engineers of the country repeatedly called attention to the unwise action of Congress in this respect. Those of us in Congress who are intimately identified with this branch of public service saw and recognized this ; but reforms are of slow growth, and it took years to educate popular sentiment in and out of Congress to the point of departure from the old, wasteful system, and the adoption of the new, or what is now called "the contract or continuous work," system.

This reform first made its appearance in 1890, on the river and harbor bill of that year. Its advent was retarded by the sharp criticism always encountered by river and harbor bills, and the fierce warfare waged on them in Congress.

It is true that prior to 1890—back in the seventies—a contract was awarded by law to James B. Eads to deepen the pass at the mouth of the Mississippi River. But that was an authorization to an individual to do specific work, and was not the outlining of a general policy, at that time, to be thereafter followed.

The contract provisions, however, in the bill of 1890 authorizing the Secretary of War to make contracts for the completion of certain public works was the first experimental step taken in the inauguration of a reform in legislation relating to river and harbor improvement, which may now be considered the settled policy of the government, to be prosecuted slowly, as the condition of the national Treasury admits, until all the works undertaken by the government, or at least the largest one, are included in it.

The bill of 1890 provided for contracts for completion in the case of five of the most important projects of river and harbor improvement. These were the St. Mary's Falls Canal, the Hay Lake Channel, and the harbors of Philadelphia, Baltimore, and Galveston. Without increasing the usual appropriations for these projects, which the bill carried, the following proviso was inserted in the case of each :

> "*Provided,* that such contracts as may be desirable may be entered into by the Secretary of War for the completion of the existing project, or any part of the same, to be paid for as appropriations may from time to time be made by law."

This gave the Secretary of War the authority to contract obligations on the part of the government for the completion of the improvements at the localities mentioned, and gave to the works themselves the coveted status of being "expenditures authorized by existing law." Holding this status, the funds to meet the payments under the contracts became part of the current expenses of the government, and to be provided for as other expenses authorized by law are provided for, viz.: on one of the general appropriation bills, which come every year. The river and harbor bill is not one of the general appropriation bills, and, as already seen, comes only once in two years. Accordingly, the "contract" river and harbor projects passed out of the river and harbor bill and took their place on the sundry civil appropriation bill, which is one of the regular appropriation bills reported by the Committee on Appropriations.

The result of this departure from the old system was extremely gratifying. Not only was no difficulty found in securing bids for work, to be paid for as appropriations might be made, but in letting the contracts for completion at the five localities alluded to a saving of millions of dollars was effected over previous estimates.

This change proved such a decided success in the matter of economy, as well as in insuring speedy results, that when the river and harbor bill of 1892 was being made up it was resolved to extend the system. Thirteen more of the largest and most important projects under way of improvement were, in that bill, placed under the "contract" or "continuous work" system. These were the harbor of Refuge at Point Judith, R. I.; the harbors of Charleston, Savannah, and Mobile; Humboldt Bay, California; the Hudson River, upper Mississippi River, lower Mississippi River, Missouri River, the Columbia River at the Cascades; the mouth of the St. John's River, the Great Kanawha River, and the Ship Channel, Great Lakes.

Under the authority thus given, the Secretary of War has entered into contracts for these works, with the most gratifying results as to economy and expedition of construction.

For instance, it was estimated that the Ship Channel in the Great Lakes would cost $3,340,000. Under the authority to let out the whole work, contracts have been made for the completion of the project for the sum total of only $1,304,434.38, much less than one-half of the original estimate.

At Humboldt Bay, California, the estimate of the cost of the work was $1,715,115. A contract has been made to complete the project for less than half that sum, including contingencies.

At Hay Lake Channel, St. Mary's River, contracts have been made for the completion of the project at a saving of $900,000 under the estimate.

Great saving in money is also reported in the work on the Hudson River, on the Columbia River, on the lower Mississippi River, and at Mobile, at Charleston, at Baltimore, and other points; and as regards saving in time, the Chief of Engineers reports that "under the system of continuing contracts it is judged that the works will be completed in one-half the time which would be required were the works to depend on biennial appropriations and a consequent succession of contracts."

NEWTON C. BLANCHARD.